Installing NAF under CICS

This section describes how to install Natural Advanced Facilities (NAF) under CICS.

Prerequisites

- Base Natural Version 2.3 or above must be installed.
- The Natural CICS Interface must be installed.
- It is possible to use a VSAM file as a spool file. In this case, Natural for VSAM Version 2.4 or above must be installed. For more information, see the Natural for VSAM documentation.

Installation Tape - OS/390 Systems

The installation tape contains the datasets listed in the table below. The sequence of the datasets is shown in the Report of Tape Creation which accompanies the installation tape.

Dataset Name	Contents
NAF*nnn*.LOAD	Natural Advanced Facilities executable load phases and modules which are necessary for the linkage editor.
NAF*nnn*.INPL	Natural programs including sample source programs and system load modules which are necessary for Natural Advanced Facilities.
NAF*nnn*.SYSF	Empty sample spool file; input to Adabas load utility.
NAF*nnn*.ERRN	Natural Advanced Facilities error messages.

The notation *nnn* in dataset names represents the version number of the product.

Copying the Tape Contents to Disk

If you are using System Maintenance Aid (SMA), refer to the SMA documentation (included on the current edition of the Natural documentation CD).

If you are **not** using SMA, follow the instructions below.

This section explains how to:

- Copy data set COPY.JOB from tape to disk.
- Modify this data set to conform with your local naming conventions.

The JCL in this data set is then used to copy all data sets from tape to disk.

If the datasets for more than one product are delivered on the tape, the dataset COPY.JOB contains the JCL to unload the datasets for all delivered products from the tape to your disk.

After that, you will have to perform the individual install procedure for each component.

Step 1 - Copy data set COPY.JOB from tape to disk

The data set COPY.JOB (label 2) contains the JCL to unload all other existing data sets from tape to disk. To unload COPY.JOB, use the following sample JCL:

```
//SAGTAPE JOB SAG,CLASS=1,MSGCLASS=X
//* --------------------------------
//COPY EXEC PGM=IEBGENER
//SYSUT1 DD DSN=COPY.JOB,
// DISP=(OLD,PASS),
// UNIT=(CASS,,DEFER),
// VOL=(,RETAIN,SER=<Tnnnnn>),
// LABEL=(2,SL)
//SYSUT2 DD DSN=<hilev>.COPY.JOB,
// DISP=(NEW,CATLG,DELETE),
// UNIT=3390,VOL=SER=<vvvvvv>,
// SPACE=(TRK,(1,1),RLSE),
// DCB=*.SYSUT1
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//
```


Where:

<*hilev*>	is a valid high level qualifier
<*Tnnnnn*>	is the tape number
<*vvvvvv*>	is the desired volser

Step 2 - Modify COPY.JOB to conform with your local naming conventions

There are three parameters you have to set before you can submit this job:

- Set HILEV to a valid high level qualifier.
- Set LOCATION to a storage location.
- Set EXPDT to a valid expiration date.

Step 3 - Submit COPY.JOB

Submit COPY.JOB to unload all other data sets from the tape to your disk.

Installation Tape - VSE/ESA Systems

The installation tape contains the datasets listed in the table below. The sequence of the datasets is shown in the Report of Tape Creation which accompanies the installation tape.

Dataset Name	Contents
NAF*nnn*.LIBR	LIBR backup file.
NAF*nnn*.INPL	Natural programs including sample source programs and system load modules which are necessary for Natural Advanced Facilities.
NAF*nnn*.SYSF	Empty sample spool file; input to Adabas load utility.
NAF*nnn*.ERRN	Natural Advanced Facilities error messages.

The notation *nnn* in dataset names represents the version number of the product.

Copying the Tape Contents to Disk

If you are not using System Maintenance Aid, adapt and run job NAFTAPE to copy the load library from tape to disk. NAFTAPE is contained in sublibrary NAT*nnnJ* on the Natural installation tape.

The space each dataset requires on disk is shown in the Report of Tape Creation.

Installation Procedure

For installation, use the jobs provided on your Natural tape (names begin with NAF).

Note:
If you are using a VSAM spool file, refer also to the special instructions for VSAM.

Step 1: Load the Spool File - Job I050, Step 0300

You **must** generate a new spool file because the Adabas FDT used in Version 2.3 is not compatible with the one used in Version 2.2.

Load the Natural Advanced Facilities spool file contained in NAF*nnn*.SYSF using the ADALOD utility. An initial size of one cylinder for this file will be sufficient. The following parameters are mandatory:

```
VERSION=6
ISNREUSE=YES
```

to cause Adabas to reuse the ISN of a deleted record. For the file number <fspool>, you may choose any value.

Step 2: Modify NAFPARMC removed - Job I055, Step 0305

The NAFPARMC parameter module no longer exists in Version 2.3. To set the spool server options, see Step 11.

Step 3: Create a Separate Thread Group for Printer Transaction - Jobs I070, I080

It is recommended to establish a separate thread group for the Natural Advanced Facilities printer transaction. To do so, perform these steps:

1. **Modify the Natural/CICS Control Block - Job I070, Step 2245**
   Include a definition of the Natural Advanced Facilities printer thread group into the Natural/CICS control block.
2. **Relink the Modified Natural/CICS Control Block - Job I070, Step 2250**
   Repeat linking of the Natural/CICS control block.

Step 4: Modify NATPARM - Jobs I060, I080

Modify the parameters FSPOOL, NTPRINT, NAFUPF and NAFSIZE in NATPARM according to your site requirements. For more information on these parameters, see NATSPOOL Initialization.

Assemble and link the Natural parameter module NATPARM.

Step 5: Link the Natural Nucleus - Jobs I060, I080

Add the following INCLUDE statements in the link steps for Natural and link-edit the executable module:

OS/390	VSE/ESA
INCLUDE NAFLIB(NAFAF)	INCLUDE NAFAF
INCLUDE NAFLIB(NAFNUC)	INCLUDE NAFNUC

Ensure that the Natural module NATTTY is part of your Natural nucleus, since NATTTY enables the Natural Advanced Facilities spool server to send error messages to a printer.

The link-edit of the load module containing Natural Advanced Facilities can be done in any of the following ways:

- Include all modules of Natural Advanced Facilities, that is, NAFNUC and NAFAF, in the link-edit of Natural.
  Note:
  If a shared nucleus is created, the modules can be included in the shared nucleus.

- Link-edit NAFNUC and NAFAF and an alternate Natural parameter module as a separate module with the mandatory *entry* name CMPRMTB. The *name* of the resulting module is optional.
  Note:
  This way of link-editing only applies if an alternate parameter module ("PARM=" parameter) is used. If so, an additional CICS PPT entry with PROGRAM=name is required.

- Link-edit NAFNUC and NAFAF as a separate module with the mandatory *entry* name NATAM08. The *name* of the resulting module is optional. If it is different from NATAM08, however, it must be specified as an alias name in an NTALIAS macro entry of the Natural parameter module.
  Note:
  This way of link-editing only applies if the Natural Resolve CSTATIC Addresses facility (RCA) is used. If so, an additional CICS PPT entry with PROGRAM=name is required.

Step 6: Load the System Programs - Job I061, Step 0300

Load the Natural Advanced Facilities system programs into the Natural system file using the Natural INPL utility. INPL loads the maintenance programs under the application IDs SYSPOOL and SYSPRINT.

Ensure that INPL finishes with the message "Natural Advanced Facilities initialized by INPL". If this initialization fails, various problems will be encountered at execution time.

This INPL file contains the source for all maps used in the Natural Advanced Facilities system.

These maps are provided in source form to enable users to customize the system (for example, to translate the maps from English to another language).

If these maps are modified, ensure that all fields have the same format/length/relative position in the map. Failure to abide by this restriction will result in an invalid system.

Step 7: Load the Error Messages - Job I061, Step 0304

Load the Natural Advanced Facilities error messages file (dataset NAF*nnn*.ERRN) using the ERRLODUS program as described in the Natural SYSERR Utility documentation.

Step 8: Modify the CICS Tables

Modify the CICS PCT table as described below.

For performance reasons it is strongly recommended to specify for the spool server a transaction ID which is different from that of the terminal task (see Step 11). It is then possible to dedicate special threads to the spool server.

Add a transaction ID entry for the NATSPOOL spool server to the PCT Table as in the following example:

```
DFHPCT TYPE=ENTRY,                          X
       PROGRAM=<natcics>,TRANSID=<naftran>,X
       SPURGE=YES,CLASS=LONG,TWASIZE=128,   X
       DTB=YES
```

The above example assumes that:

- <natcics> is the name of your already existing Natural load module;
- <naftran> is the transaction ID of the NATSPOOL spool server.

In this way, the spool server transaction ID is related to the same Natural load module as your already existing terminal task transaction ID.

Note:
To limit the number of NATSPOOL spool servers, you can define a special CICS transaction class via the parameter CMXT in the SIT for the spool server.

Step 9: Natural Advanced Facilities and Natural Security

This step must only be performed, if Natural Advanced Facilities is being installed in a Natural Security environment.

Define SYSPOOL to Natural Security with startup program MENU.

Note:
The physical CICS printers and the application SYSPRINT need not be defined to Natural Security. The Natural Security logon processing will identify the NATSPOOL spool server and perform a simplified logon to SYSPRINT, that is, without any further security checks. In this way, maintenance efforts and the number of Adabas calls at the start of the spool server are considerably reduced.
Any logon to SYSPRINT attempted by users other than the NATSPOOL spool server will be rejected by Natural Security, regardless of whether SYSPRINT is defined to it or not.

Step 10: Start Natural

Start Natural and add the user profile, as defined in the NAFUPF parameter of NATPARM, to the SYSPOOL file using Function 31.1.

Note:
A NAT7201 message is issued at the start of the session indicating that the profile has not yet been added to the SYSPOOL file.

Step 11: Create NATSPOOL Environment

If you already have a Natural Advanced Facilities 2.2 spool file and you want to use it under Version 2.3, its contents must be converted to the newly generated Version 2.3 spool file. This is done using the CONVERT command in library SYSPOOL, see Conversion from Version 2.2.

Note:
A Version 2.1.n spool file cannot be converted directly to Version 2.3.n. It must first be converted to Version 2.2.n.

After conversion, you must specify the general spool file options and the system-specific options for the spool server. See Function 30.5.

To initialize a new NATSPOOL environment, see NATSPOOL Initialization.

Step 12: Natural Advanced Facilities and VTAM/SNA

This step must only be performed, if Natural Advanced Facilities is being installed under CICS and is to be used in conjunction with VTAM/SNA printers.

- Define devices in the TCT with a RELREQ setting to (YES,YES). (This will ensure that VTAM printers are released at the end of printout time when devices are shared with TSO, BATCH, JES, etc.)
- Define TRMSTAT=INTLOG or CREATESESS=YES for the printer to allow EXEC CICS START requests to create a session.
- Ensure that the device has the SHARE option generated into the controller VTAM specifications.

Step 13: Natural Advanced Facilities and VTAM/NON-SNA

This step must only be performed, if Natural Advanced Facilities is being installed under CICS and is to be used in conjunction with VTAM/NON-SNA printers.

- Include TRMSTAT=TRANSCEIVE in the TCT definition for the device.
- Set the VTAM definition for the device parameter ISTATUS to ACTIVE.

Installation with a VSAM Spool File

In addition to the installation steps under Installation Procedure, the following special instructions apply if you are using Natural Advanced Facilities with a VSAM spool file.

Step 1: Prepare VSAM Cluster for Spool File - Job I008, Steps 0300 - 0311

Note:
This step replaces Step 1 (Load the Spool File).

Define and initialize a VSAM cluster (FSPOOL) to be used as a spool file and five alternate indices (FSPOOL.AIXA, FSPOOL.AIXB, FSPOOL.AIXC, FSPOOL.AIXD and FSPOOL.AIXE).

Step 4: Modify NATPARM

Note:
This is an additional instruction for Step 4.

Set the FSPOOL parameter as follows:

`FSPOOL=(`*`vsam-dbid`*`,`*`fnr-fspool`*`,`*`dd-name-fspool`*`)`

The *dd-name* is limited to seven characters.

Step 5: Link the Natural Nucleus

Note:
This is an additional instruction for Step 5.

Add the following INCLUDE instruction to all links of the Natural nucleus.

Platform	Instruction
OS/390	INCLUDE NVSLIB(NVSFSPO)
VSE/ESA	INCLUDE NVSFSPO

Step 8a: Modify the CICS FCT - Job I005

Note:
This is an additional step which must be performed after Step 8.

Add the Natural Advanced Facilities spool files (SPOOL, SPOOLA, SPOOLB, SPOOLC, SPOOLD and SPOOLE) to your FCT.

Refer to the job VSAMI005 for examples. You can also add DD statements for these datasets to your CICS startup job.

Note:
If you want to convert an existing VSAM Version 2.2 spool file, the FCT must contain the entries for this spool file. The cluster names for Version 2.3 and Version 2.2 must be different. The VSAM database ID and file number as well as the VSAM DD-names must be unique.

